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BRITAIN'S BLOCKADE

BY

R. W. B. CLARKE

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THE Germans believe in *Blitzkrieg*; the deliberate and ominous marshalling of the thunderclouds; and then the sudden devastating storm. Lightning strategy, at the beginning of a war, belongs to the aggressor, for he has prepared his thunderbolts and knows the date of battle. Britain's thunderbolts strike later, but they will strike an enemy whose military power has already been weakened at the core by the blockade, the slow but deadly weapon which Britain has been using and perfecting since the first day of the war.

In this Pamphlet Mr. Clarke describes the objectives and methods of this blockade, and its relation to the strategy of air-bombing; the position of specific classes of raw materials (of which the crucial example is oil); the problem of the time-factor; and, finally, the question of food supplies, both in the enemy countries and in the occupied territories.

Mr. R. W. B. Clarke has made a special study of the economic problems of war, and is the author of *The Economic Effort of War* (Allen & Unwin, Jan. 1940). In 1938-9 he toured the U.S.A., in his capacity of assistant editor of the *Financial News*, to examine the industrial and economic situation there at first hand.

For further information on the technical facts of the conversion of foodstuffs into war material the reader is referred to Oxford Pamphlet No. 24, *Blockade and the Civilian Population*, by Sir William Beveridge, and for the history of the Blockade in the last war to Pamphlet No. 17, *The Blockade, 1914-1919*, by W. Arnold-Forster.

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BRITAIN'S BLOCKADE

The Need for a Dynamic Strategy

THE broad strategic outline of the war, in the autumn of 1940, is clear. Britain, buttressed by the Dominions and increasingly by the United States, faces a Nazi-dominated Europe. On land, the supremacy of the German Army cannot be disputed; nor is there any question of the supremacy of British sea-power. In the air, the British forces have shown themselves technically superior to the German, but are still inferior in numbers. Britain's air strength and sea-power are enough to throw back the invader, but the whole forces of the British Empire are manifestly insufficient to embark upon large-scale offensives on the continent of Europe in the immediate future.

Such a situation clearly might lead to stalemate, which would be tantamount to Nazi victory. If Britain relied exclusively at this stage upon a long-term plan for building vast land armies and air armadas in order at some unspecified later date to make a grand offensive in Europe, then the ultimate outcome would almost certainly be stalemate. If the United States entered the war and embarked huge and fully equipped expeditionary forces for Europe, the strategy of direct frontal attack on the German armies might be successful. But so great would be the time required for the preparation of such an offensive, and so unfavourable is the manpower arithmetic to the British forces, that in practice the plan would be unworkable. Germany would be given time to consolidate her hold on Europe and to create a firm basis for the Nazi régime; as the forces of Britain grew, so would the forces

opposed to her; in all probability the grand offensive would never take place.

Static strategy of this kind, indeed, is the very reverse of what the situation requires. To think in such terms now would be to repeat the error of 1939-40. The military situation, and the political and social forces in Europe, will not wait for a gradual accumulation of British strength, and for slow advance with measured tread. Britain must make the speediest material preparation possible, and mobilize all economic resources for the greatest conceivable material effort, but at the same time the most enterprising and energetic measures must be taken to weaken Nazi resistance from within. At the circumference, so to speak, of Nazi military power, she must deliver shrewd counter-attacks and pushes. Sea-power provides mobility on a world-scale to enable her to strike land blows at various points on the circumference at which she is threatened and at others besides—in Africa, in the Middle East, at appropriate points in Europe. To such points she will be able to transport men and material speedily and silently, and she will be able there to make harassing thrusts. But this is not nearly sufficient. Means must be devised to strike at the heart of the enemy, and to weaken Nazi military power at the core. Only when the Nazi power has been decisively weakened at the centre will it be possible to embark upon frontal assault.

How can this weakening at the centre be achieved? One powerful means, of course, is the skilful use of the weapons of propaganda and diplomacy. But the greatest importance must be attached to the combination of bombing of industrial objectives with the blockade. British command of the seas means that Britain can now cut off the whole of enemy and enemy-occupied territory from supplies of all kinds

from the outside world; the vast sea-borne trade of the continent of Europe has dwindled to a trickle through the Arctic ports, to Spain and Portugal, and (through the Suez Canal) to South-Eastern Europe. There is still some land trade to and from Asia through the Soviet Union, but the quantities are not significant. For all practical purposes, the Nazi-controlled part of Europe can be and is cut off from supplies from the outside world. This blockade, reinforced by intelligent and drastic bombing policy, which strikes further hammer-blows at the weaknesses created by the blockade, is the means whereby Nazi military power can be weakened from within. Bombing and blockade are two aspects of the same thing—the economic attack at the very heart of Nazi power.

Objectives of Blockade

The general aim of the blockade-bombing combination is of course simple. In the plainest terms it is to interfere with German and Italian war supplies so effectively that the war machines will be positively weakened, and the foundations laid for successful military assault. This aim is achieved in two different ways. First is the direct attack upon supplies of oil and war materials in order to keep the aeroplanes on the ground and the mechanized armies pinned to the spot for lack of transport, and to stop the flow of war equipment from the factories. Second is the indirect attack which creates general interference with the industrial and transport systems. If two million soldiers have to be occupied in agricultural work, so many fewer are available for military operations. If the road transport system is dislocated for lack of petrol there is greater pressure upon the over-burdened railways, which a few well-directed bombing raids can greatly

intensify. The greater the Nazis' and Fascists' difficulties in supplying food, heat, and clothing for their civil populations, the more difficulties will they encounter in maintaining factory outputs, the more shells will be 'duds', and the worse will be the quality of workmanship. To reach its objectives, the Nazi war machine must run smoothly and uninterruptedly; disorganization and dislocation of all kinds make its work much more difficult.

The same considerations apply, of course, to the blockade of enemy-occupied territory. The Nazis aim at using these territories as bridge-heads for the attack on Britain, and they aim at exploiting their resources for the use of the German war machine. If the economic systems of these countries are disorganized, troops must be used for police work instead of for military preparation, and the work of military organization is hampered at every turn. To prevent these countries' industries from being used for the Germans' benefit is elementary military prudence, and Britain must obviously put every possible obstacle in the way of their strategic and economic exploitation.

Supplies to Occupied Territories

Supplies of all kinds to Germany and Italy and to the occupied territories are therefore stopped. It is obvious that if Britain allowed metals and textile materials to enter the occupied territories at Oslo or Antwerp, at Rotterdam or at Bordeaux, they would either be whisked direct to Germany or would be used on the spot to make goods which could then be sent to Germany. At best, they would release Germany from the need to use her own resources to supply such goods. If British coal were sent to France, for example, the French transport system would be able to work without supplies from

Germany, and so the pressure upon Germany's coal-mining resources would be eased. For food and fodder the position is precisely the same. Either the food would be sent to Germany or would be consumed by German armies of occupation, or Germany would be relieved from the painful duty of using her own stocks of food to relieve hardship in the occupied territories. In every case, the direct consequence of allowing supplies to enter the occupied territories would be to improve the situation inside Germany and correspondingly to strengthen public morale, armaments output, and long-term resistance-power. Britain manifestly cannot afford to do this. Everything must be excluded.

In this context, occupied and non-occupied France must be regarded as one. In no sense of the word can the Government of non-occupied France be regarded as independent; Marshal Pétain has admitted this in as many words, and in fact no other form of Government is possible. The Vichy Government exists only on German sufferance; indeed, the opinion may be hazarded that the division of France into 'occupied' and 'non-occupied' territory is nothing more than a device to relieve the Germans of the administrative difficulties created by the millions of refugees, and to leave open a possible loophole in the blockade through which goods could be transported to Germany. The Vichy Government and the press of non-occupied territories have been steadily complaining about the existence of a 'frontier' between occupied and non-occupied France, and are making all possible arrangements for the revival of trade between the two areas. The further this develops, the clearer does the dependence of the Vichy Government upon the German military authorities become, and the more certain it is that any imports into non-occupied France

would be seized by the Germans if they wished.¹ The only difference between occupied and non-occupied France, indeed, is that in the one area the German military authorities govern directly, while in the other their orders are passed on to the public by Frenchmen. Clearly no economic distinction can be made between the two.

So the blockade works. On the one hand, it attempts to bring direct pressure upon the German and Italian war machines by interfering with the supplies of oil, transport, and war material—and this pressure is strongly reinforced by bombing. On the other it brings indirect pressure to bear by causing general economic dislocation and shortage over the whole area under German and Italian control. These pressures strike at the heart of the enemy war machine, and will ultimately weaken it decisively.

Technique of Blockade

The technical job of exerting the blockade is partly one of sea-power, and partly one of economics and diplomacy. First of all, the seaways to Europe must be continuously patrolled, and every ship on the high seas must be watched, in order to prevent blockade-running. Secondly, arrangements must be made to allow European neutrals to get supplies, without running the risk of having those supplies passed on to the enemy. The very existence of neutrals adjacent to enemy territory means that the blockade cannot be made absolutely water-tight, for even if it were permissible under international law, it would be manifestly undesirable to starve neutrals of all non-European produce. A balance has to be

¹ This is emphasized by the persistent reports that the Germans are demanding from Vichy a fixed proportion of the goods produced in and imported into non-occupied France.

found between such stringency as would drive them economically into the Nazi camp and such leniency that they would in fact be able to supply Germany indirectly.

In the first eight months of the war these technical difficulties prevented the blockade from being nearly as effective as it could have been. Germany's contact with the outside world was cushioned by small neutrals—the Scandinavian countries, Holland, Belgium, Switzerland, and the Danubian countries—and by a pre-belligerent, Italy. In particular, Italy was able to act as a funnel through which goods poured into Germany; the other neutrals, too, were unable wholly to control the activities of German trading agents on their territory. To have stopped this evasion of the blockade, and to have checked the through-traffic to Germany, would have required drastic limitation of the neutrals' foreign trade, amounting to real hardship.

The British Government, rightly or wrongly, was unwilling to do this. In the first week of war, Mr. Chamberlain announced that this would be a long war, and consequently it was considered desirable to protect the small neutrals' economic systems as far as possible from the hardships of war, and to allow them to build up war reserves of food and raw materials. Under the British War Trade Agreements with these neutrals, permission was given to import large quantities of goods for reserves, subject only to a guarantee that they would not be re-exported. It was decided that the greatest possible facilities should be given to the neutrals to conduct their foreign trade as uninterruptedly as possible, and such facilities were, in fact, given. For Italy the position was rather different; in her case the British Government appears to have been relatively lenient

because it feared that draconian measures would consolidate, rather than weaken, the link with Germany, and would force Italy into the war. Consequently, although the great bulk of Germany's imports from outside Europe was cut off, there was a steady flow of commodities through Italy, and there was a steady trickle through the adjacent neutral territories.

In the present situation these technical difficulties are to a large extent eased. The naval task of patrolling is greater, although the new American destroyers virtually replace the French ships. But the problems of administration are much less troublesome. There are relatively few adjacent neutrals to be taken into account—the chief are Spain and Portugal—and previous experience has greatly strengthened the British Government's determination to act drastically in order to prevent them from re-exporting to Germany and Italy.

To handle the problem a new technique has been developed. Instead of letting the trade come to Europe and then inspecting it and confiscating suspected contraband at Contraband Control ports—a very tedious and time-wasting process—there is now a system of remote control. A plan is in operation for issuing compulsory navicerts to all ships coming to Europe and North Africa. This means that every item in the cargo of every ship sailing to European or North African ports must be approved by British consular officers at the port of loading, and that the ship and cargo as a whole must get a covering navicert at the final port of departure. Thus no ship may sail in the direction of the blockaded area without the full fore-knowledge of the British authorities. All ships which are entitled to be sailing towards Europe are known and can be recognized, with no loss of time, and any ship which is sailing

without navicert can be stopped hundreds of miles away from its destination. This clearly makes blockade-running an extremely difficult matter, and it also facilitates legitimate trade with European neutrals, for the legitimate trader can load his cargo, get his navicert, and proceed to his destination without interference.

This control is reinforced by the facts about the shipping position. Britain and her Allies together control about one-half of the world's shipping; American shipping is excluded under the Neutrality Act; Japanese and Russian shipping is fully occupied in Japanese and Russian trade; German and Italian shipping is immobilized, either at home or in neutral ports. There is, in fact, very little shipping available for blockade-running, and a system of ship warrants devised by the Ministry of Shipping has reduced that margin even farther.

These far-reaching measures of world trade control and world shipping control therefore give Britain the power to operate the blockade effectively. The danger of blockade-running—for example, through what used to be Norwegian territorial waters—is cut down to a minimum, and the system of compulsory navicerts enables the British authorities to control very closely the quantities of non-European produce which the adjacent neutrals are allowed to take. Some supplies will always seep through any blockade, but with this new machinery it is possible to limit them to tiny proportions. We can work on the assumption, therefore, that the blockade is absolutely effective.

Raw Material Blockade

The blockade of Nazi-dominated Europe can be and is effective. What practical results can it be expected to achieve by itself and reinforced by

bombing? It is evidently extremely difficult to work out a sort of time-schedule which would enable us to forecast the time at which raw material shortages would bring the Nazi war machine to a halt. All sorts of unpredictable factors enter into such a calculation—the rate of consumption of materials (which itself depends upon the development of the war), the Nazi policy in occupied territory, the size of pre-war stocks, and the extent to which they have been exhausted in a year's warfare and supplemented by loot from conquered territory. This would be a terrifyingly difficult computation. But it is possible to point clearly and simply to the chief weaknesses, and to get some idea of the way in which those weaknesses fit into the pattern of the war.

Although the Nazis now have the whole resources of Continental Europe at their disposal, there are a number of serious raw material deficiencies which will become increasingly apparent as the war proceeds. Dr. Funk and Dr. Goebbels claim that the continent of Europe is a compact and independent economic unit, which under Nazi control can be self-sufficient, or at any rate sufficiently so to enable it to dictate trade terms to the outside world. The rest of the world, says Dr. Funk, is dependent upon Europe, not vice versa.

Europe's Relative Poverty in Natural Resources

These assertions, however, are nothing more than propaganda. It is an unfortunate fact, from Hitler's point of view, that Europe is relatively poorly endowed with natural resources. Its industrial capacity is admittedly huge, but it is based very largely upon imported fuel and raw materials. The industrial system and the transport network of Europe are founded upon imports of raw materials,

and their conversion into manufactured goods for home use and for export. A glance at the industrial map of Europe shows that. The statistics are conclusive. Excluding Britain, Eire, Turkey, and the Soviet Union, the continent of Europe has a net import surplus of \$2,500,000,000 a year in raw materials and semi-manufactures. This, together with a net import of food and fodder of \$550,000,000, is of course offset by exports of manufactured goods and services, interest payments, and capital exports. These global figures ruthlessly destroy the contention that the system is 'self-sufficient' or anything like it. The Continent could no doubt be self-sufficient at a much lower standard of life than that of pre-war, low though that previous standard was. But the real industrial assets of Europe, and everything that makes for a higher living standard, are based upon trade with the outside world. Without imported materials the millions of skilled workers and the great industrial enterprises might just as well not exist.

Oil

In specific terms of supply of individual raw materials, the dependence upon imports—and thus vulnerability to blockade—becomes even plainer. The most spectacular and significant deficiency, of course, is that of oil. In peace-time the oil consumption of Germany and Italy was some 10 to 11 million tons, and that of the occupied territories some 10 million tons. The consumption of other European territories, excluding Spain and Portugal, was between 4 and 5 million tons, giving a continental total of some 25 million tons. European production, on the other hand, is not much more than 11 million tons, of which 6½ millions come from Roumania. These supplies may, to some

extent, be reinforced by imports from Russia, and they are cushioned to some extent by stocks. But it is certainly true to say that the current supplies available to Europe are less than one-half of peacetime consumption.

How can this be related to war-time conditions? It is abundantly clear, first of all, that tremendous economies can be made in civil consumption. The virtual abolition of the private car, together with the use of producer gas for public transport, can secure economies which, before the war, would hardly have seemed credible. It is perfectly conceivable that the Germans and Italians can reckon on reducing their civil consumption by two-thirds, and that they can impose upon occupied territories a reduction of three-quarters and upon neutrals reductions of one-half. On this showing, civil European demand is reduced to some 8 million tons a year. To this must be added the demands of the German and Italian war machines, which cannot be less than 5 million tons a year, and may well be more. The German Army must now operate, even in a relatively passive period, over a vast area, and as the area of occupation extends, so does the demand for petrol. Even with the most drastic limitation of civil consumption, there will be a marked deficiency of supplies. If the whole of Roumania's output can be made available, the deficiency may be manageable. But most of Roumania's oil is normally transported by sea, and such transport is now practically impossible, and rail and river transport is limited.

These figures are bound to be only approximate, but they show the general scale of the oil problem. They set in bas-relief the significance of the intensive bombing of oil dumps, oil refineries, and oil-from-coal plants. Without bombing, the operation of total blockade must give the German High Com-

mand increasing concern, as the stocks are gradually exhausted. With bombing, the critical point may be reached much earlier. This clears the way for amphibian thrusts by Britain at widely separated points on the circumference of Nazi military power; it opens a vista of classical British victories in which forces heavily armed and superior in number succumb to the lightning thrusts of a smaller but more mobile enemy.

Further point is added to the oil shortage by the rail transport bottleneck. The virtual elimination of road transport and the stoppage of sea-borne trade increase the pressure upon the German railway system, over-burdened even before the war, and regularly disorganized by bombing. The need to provide rail transport for deliveries of Roumanian oil is just one illustration of the way in which this pressure is intensified. Again, the increased use of coal means more coal transport and further railway problems. In the occupied territories, these problems are particularly grave; the road transport of France was highly developed, and her railways altogether inadequate to cope with a normal level of trade. Thus the movement of goods is slowed down, all sorts of bottlenecks are created, and the flow of war material and civilian goods all over Europe is impeded.

Coal and Coke

In actual supplies of coal and coke the Continent is normally nearly self-sufficient. German and Polish export surpluses are nearly enough to supply the deficiencies of Italy, Scandinavia, and France. But there is increasing demand for German and Polish coal within Germany. Coal is the basis of substitute production of all kinds, both directly 'as in oil-from-coal extraction, in the production of

Buna rubber, and in plastics, and indirectly in the production of electric power. Furthermore, the transport shortage greatly interferes with coal supply; last winter there was ample coal production in Germany, yet there were shortages in many parts of the country. Consequently, it seems very unlikely that there will be any coal available from Germany for the occupied territories, and indeed the Germans may attempt to get Dutch, Belgian, and French coal for their own uses. Thus, within Germany there is a coal problem which checks the development of substitute production, and in the occupied territories there is likely to be a continuous shortage of coal.

Metals

More far-reaching difficulties appear in the supply of metals. If the Germans could build a new transport system in Europe, and develop the full potentialities of all Europe's coal-fields, then there would be no coal problem. But in many metals Europe's resources are very weak. Unlike the War of 1914-18, this is not a steel war. In protracted trench warfare the supply of shell steel is the key military-economic factor. But this time it seems very unlikely that trench warfare will develop on anything like the scale of 1914-18. This is a war of movement, and its decisive weapons are the aeroplane and the armoured vehicle. The significant metals are aluminium and special steels, rather than basic steel, and the significant industrial processes are those of precision engineering and electric power rather than those of heavy engineering. Basic steel is still important. But particular attention must be paid to aluminium supplies, to copper (of paramount importance for electrical works), and to ferro-alloys, which impart the necessary heat-resist-

ing, penetrating, and resisting qualities to steel, not only for the weapons themselves but for the tools which make the weapons.

Europe's supplies of bauxite, the raw material for aluminium, are wholly adequate. Nevertheless, aluminium supply is limited by the capacity of the reduction plant, which is expensive to build and vulnerable to aerial attack. Of copper, the Continent must import some two-thirds of its supplies, even on the most favourable assumptions about the use of scrap. Consequently, in order to maintain electrical efficiency, and even more to expand electric-power output, aluminium must increasingly be substituted for copper. Thus the shortage of copper increases the pressure upon the aluminium reduction plants, and in the last resort forces a choice between aircraft production and electric power. There is some reason to believe that this point is approaching; there are indications of increasing desire to conserve aluminium supplies.

In the alloy metals—nickel, chrome, cobalt, tungsten, and molybdenum—the Continent is extremely weak. Supplies of manganese are adequate, but manganese cannot be substituted for the others in more than a few cases. The Germans will, therefore, experience increasing difficulty in maintaining their industrial, electrical, and transport efficiency, and in producing armour plate of high resistance power and armour-piercing bombs of great penetrating power. The shortage of alloy metals, taken in connexion with the shortage of copper, may be expected primarily to affect the quality of war equipment, the speed of production, the general efficiency of the industrial system. They are significant.

As for the other metals, supplies of iron ore are ample. At the beginning of the war the German

iron-ore position was very vulnerable to blockade, and if the Swedish supplies had been stopped might have been critical. But now there is no conceivable shortage either of iron ore or of steel-making capacity, and this is of course a great source of strength. The supplies of zinc, too, are adequate. But as regards lead, the Continent depends upon imports for some 55 per cent. of its peace-time consumption, and this deficiency is of some importance. So is the 90 per cent. deficiency in tin, which is urgently needed for canning. These shortages of lead and tin cause inconvenience, but not disaster. But inconveniences accumulate.

Textiles and Leather

Again, the Continent is notoriously deficient in natural textile materials. Even when the German and Italian synthetic production is taken into account, the net deficiency is still very great. For Germany, natural and synthetic production together are equivalent to no more than 40 per cent. of peace-time supplies; for Italy the figure is 75 per cent.; the occupied territories' textile and clothing industries are based to the extent of 80 per cent. upon imported raw material. In the whole area under German and Italian control, therefore, two-thirds of the peace-time consumption of textile fibres is imported. Germany will no doubt improve her position somewhat by removing stocks from the occupied territory, and by taking most of the current production of wool and flax. But to increase synthetic production to a level at which it would even approach the previous imported supply would require tremendous quantities of coal, electric power, and new factories. Inevitably the textile mills of France, Holland, and Belgium will be starved of raw material, and will have to go out of business

when stocks are exhausted. Thus the clothing situation will certainly become difficult throughout Europe. The private citizen's hidden reserve of clothes, in his wardrobe, cushions the deterioration in supply, but that reserve soon becomes exhausted. It is interesting to observe that in the second winter of war the Germans are being forced to devote increasing resources to the expansion of synthetic output in order to increase the clothing ration and prevent real hardship and cold.

In leather, likewise, there is some deficiency, although it is offset at the moment by the slaughter of live stock in occupied territory. But the great French leather and boot-and-shoe industries are based upon imported hides and skins, and tanning materials. Again, the Continent has no natural rubber supply, and Buna and reclaimed rubber together are equivalent to much less than one-half even of Germany's and Italy's needs, and is equivalent to only one-quarter of Continental peace-time consumption. Here, as in textiles and indeed throughout the consumers' goods industries, a further expansion of synthetic production is immensely costly in coal and electric power, and indirectly in non-ferrous metals and ferro-alloys. In iron ore and aluminium, as we have seen above, the Continent is strongly placed. But in most other industrial raw materials it is dependent upon supplies from outside.

The Material Time Factor

This provides a general picture of the way in which the blockade can be expected to affect Nazi-dominated Europe. The oil shortage stands out above the others. But the copper and ferro-alloy shortages are certainly significant, and the lack of materials for consumers' goods means that supply

of civil essentials will become increasingly difficult. On the whole, it seems that exploitation of the industries of the occupied territories will be quite impossible, and the behaviour of the Germans in those territories suggests that they realize it.

But how long will it be before these shortages affect Germany and Italy? More important still, when will their effects become apparent? This depends partly upon stocks, partly upon consumption. Germany and Italy now have the stocks of the occupied territories at their disposal, and also what remains of their own. The total stocks, in some cases, represent as much as a year's deficiency at peace-time rates of consumption. Moreover, concealed stocks are available and can be used as a last resort; in Poland the Nazis scrapped valuable textile machinery for the armament factories, and they could do the same to the industrial plants of Western Europe. Further supplies of scrap were acquired at Dunkirk, and to them must be added the whole equipment of the French Army. Considerations of this kind show that quick exhaustion of stocks cannot be expected.

Again, pre-war commentators failed to realize the extent to which consumption of materials could be reduced by energetic planning. They failed to see how far private petrol consumption could be cut down, and how far clothing rationing could save textile materials. Similarly, by rigid control of deficiency metals it is possible to eke out supplies for far longer than would statistically seem practicable. Just as British commentators failed to appreciate the power of a planned economy to produce war material, so did they fail to appreciate its power to cut down the consumption of raw materials.

On the other hand, there is a certain level below

which stocks cannot be allowed to fall without seriously impairing the efficiency of the system; if a year's stocks of a commodity exist, then the minimum practicable level of stocks may be reached at the end of nine months. This is because the stocks must be geographically distributed over the country, and it is administratively impossible to do that absolutely evenly and smoothly. Moreover, the shortages interlock to such an extent that one induces another. The process is very much that of a game of nine-pins. The shortage of copper leads to demand for aluminium, which checks the output of aircraft; the shortage of oil increases the pressure upon rail transport, which creates coal bottlenecks, which stops synthetic production. Again, the effect of the copper and ferro-alloy shortage, coupled with the shortage of lubricating oil, is to reduce industrial and electrical efficiency, and when this process begins it has cumulative results. Maintenance can be allowed to run down for a period, but after that time the deterioration suddenly becomes critical. In this sense the blockade makes the industrial system brittle; it may appear to be resisting pressure successfully, but then the breaking-point comes.

All things considered, it seems likely that by the end of 1941 the raw material blockade will be having serious effects upon the German and Italian productive systems. Before then the oil strain may be felt. But hardly less significant is the gradual undermining of the industrial, electrical, and transport systems which by then will be becoming critical. At the same time the difficulties of maintaining ordered economic life in the occupied territories will be increasingly significant. These territories are lacking in oil, metal, textile materials, and rubber, and they have deficiencies of coal; unless

Germany is willing to supply them, their economic life will literally come to a standstill. Such degeneration would assuredly rebound politically upon the Germans' own heads. Yet to supply them would weaken the Germans' own reserves.

The process of deterioration may be accelerated by bombing and by a continuous series of harassing attacks at points conveniently accessible to British sea-power. Oil and transport are obviously the chief objectives of bombing attack. Next in importance rank aircraft factories and the aluminium reduction plants. Then there is a series of objectives of less but very significant importance, such as munition factories, tank factories, ball-bearing plants, special steel plants, Buna rubber factories, electric power stations (especially hydro-electric power stations, the destruction of which would increase the pressure upon coal supplies and transport), and so on. In this way the combination of blockade and bombing creates the fundamental weakness at the centre, which provides the background for successful offensive operations.

Food Blockade

Food gets most publicity, but actually Europe's food deficiencies are much less spectacular than those of raw materials. The Continent can certainly feed itself, although on an unattractive and monotonous diet. According to the German statisticians, whose calculations are made in calories, the Continent is 91 per cent. self-sufficient; that is, 9 per cent. of Europe's food, or its equivalent in animal feeding-stuffs, is normally imported from outside Europe. Much of this import, of course, represents cereals. Normal imports include about 4 million tons of wheat and rye (compared with normal production of about 60 million tons), 5½ million tons of oats,

barley, and maize (compared with normal production of about 55 million tons), and a million tons of rice. Europe is amply self-sufficient in potatoes, and 92 per cent. self-sufficient in sugar. In coffee, tea, and cocoa, of course, the Continent is wholly lacking. But the most important deficiency is that of fats. Of the normal consumption of vegetable and marine oils, about 70 per cent. is imported, and even when animal fats are taken into account the overall deficiency is something like 40 per cent. This is the central food weakness.

But broadly, the deficiencies are qualitative rather than quantitative. The foods which make a varied and satisfying diet are either imported or are based on imported raw material. But there is not much doubt that a tolerable diet could be maintained without a single ton of imported fats or fodder. Provided that Europe's rulers devote adequate resources to agriculture, and provided that Europeans are willing to adopt the drab dietary standards of the Nazis, Europe is potentially self-sufficient in food in any other but strikingly abnormal harvest years. In this, the Nazis' claims are justified.

The Long-term Position

As a long-term proposition, therefore, the blockade of Nazi-dominated Europe cannot create starvation, much less famine, unless there is catastrophic failure of harvest. Enough bread grains can certainly be produced, supplemented by potatoes, to provide enough calories for every European. In meat and fats, of course, a steady deterioration is to be expected. Much of Europe's live stock—especially pigs and poultry, but also cattle—has been destroyed in 1940, and the shortage of fodder will almost certainly necessitate further slaughtering.

To this extent, the supply of meat will be maintained, though in the long run declining. The supply of animal fats will become decisively worse, and will intensify the shortage of fats caused by the lack of oil-seeds and whale oil for margarine. In this qualitative sense, therefore, the food situation of the Continent will steadily deteriorate. But there is no reason to suppose that a condition of starvation will develop, or anything approaching it. If the Nazis devote insufficient labour and material resources to farming, of course, then the major bread grain harvests will suffer and the potato crops may fail. But that is in the Nazis' own control. Any acute long-term difficulties which may arise will be directly due to such conscious neglect of agriculture, or of course to deliberate theft of food from the occupied territories for building greater and greater war reserves. In the words of the *Völkischer Beobachter* of 23 August 1940, 'We Germans are just as much interested in the French harvest next year as the French themselves.' The Nazis, in fact, are the only people who have it in their power to create starvation in Europe; rations may become short, and menus tedious, but there should be enough calories, provided available supplies are distributed properly.

The Position in 1940-1

So much for the long view. The position in 1940-1 is rather different, for the 1940 harvest was poor, and social disorganization great. Some people, mostly philanthropic and well-meaning but some rather less reputable, have even mentioned the word 'famine', and have requested that Britain should raise the blockade. On the facts about European food production, and on the basis of what is known of the results of the harvest and the size of stocks,

this appears to be a great exaggeration. But it is clearly necessary for us to review the position, as it appears in October 1940, as rationally and objectively as possible.

The total Continental harvest of wheat and rye is estimated at some 15 per cent. below normal, so represents a short fall of slightly over 20 per cent. below peace-time consumption. How has this come to pass? The severe winter and late spring were contributory factors, but the fall is mainly due to the application on a European scale of 'Guns before Butter'. In Germany itself, labour has for years been steadily drawn away from the land to the armies and munitions factories; good farmland has been taken for aerodromes and barrack squares; agriculture has been denied essential materials; foodstuffs have been converted into war material, fats into explosives, and potatoes into power alcohol.¹ Since the beginning of the war this process has been intensified; even the supply of fertilizer has been restricted. In addition, Poland has been ravaged, and her farms denuded of men for work in Germany. Nazi policy has been self-contradictory. On the one hand, it has talked of '*Blut und Boden*' and agricultural self-sufficiency; on the other, it has established conditions in which agricultural success was impossible.

The Italian harvest has been rather worse than usual, and that of the Danubian granary definitely poor. South-Eastern Europe is normally a big cereal exporter, but the 1940 harvest is not even enough for these countries' own needs. Here again, the weather is partly responsible, but more important was the draft upon agricultural man-power and

¹ A full explanation of the technical facts of conversion of food into war material is given by Sir William Beveridge in the pamphlet *Blockade and the Civilian Population*, No. 24 in this series.

transport, necessitated by the continuous danger of Nazi attack.

The more specialized farming of Denmark has been irreparably damaged by the Nazi onslaught. The pig industry is virtually liquidated, and serious inroads have been made into the dairy herds. Yet until the moment of invasion Germany had received a steady flow of invaluable fats, untouched by the British blockade. Now the Danish farmers are re-organizing, switching from factory-like production of butter and bacon from imported feeding-stuffs to a balanced cereal and live-stock system, which will export relatively little. As for Norway, the fish catch is rapidly being canned and hauled away to Germany, and the population hopefully awaits the delivery of deficiency foodstuffs promised in exchange.

In Western Europe it is estimated that the successive waves of *Blitzkrieg* have reduced the harvest from the normal, say, 85 per cent. of bread grain consumption to possibly 70 per cent., and perhaps worse. There, too, has been the same story of slaughtered live stock and commandeered reserves. This is where there is greatest likelihood of shortage, except for such pockets as Northern Norway. Yet in the earlier months of the war Britain allowed Holland to accumulate very substantial food stocks, and the war grain reserve has always been an essential part of France's war plans.

The position appears to be, therefore, that in Germany and Italy the current harvests are certainly enough to cover the winter, together with the stocks in hand. The official German news-agency has actually claimed that the agricultural problem of 1940 is to safeguard the supply for the winter of 1941-2. Furthermore, the 'purchases' and loot from the conquered countries have augmented re-

serves of butter and meat, of sugar and grain. At head-quarters, so to speak, there is no reason to expect drastic shortage in the winter of 1940-1, although the supply of meat and fats will probably deteriorate.

The Question of Relief for Occupied Territories

But the position in conquered territory is uncertain so far. It is clear that the 1940 harvest will be adequate only for a few months, but the fate of the stocks is unknown. A decree in France stating that until the 1939 grain reserve has been used that of 1940 must not be touched, suggests that considerable reserves exist. The Germans and their puppets claim that supplies are in fact adequate, but they presumably have propagandist reasons for saying so. On the whole, on the basis of such information as is available in October 1940, it seems extremely unlikely that there will be anything approaching widespread starvation in Western Europe. But sporadic and local shortages, created by social disorganization and difficulties of transport and raw material rather than by global shortage of food, are likely, and indeed do apparently exist. Furthermore, a big adjustment is taking place from the varied and attractive diet of free Europe to the dismal standards of the Nazis. The market-place has become the Adolf Hitler Platz.

Such local shortages, of course, could be dealt with perfectly easily by the Germans. Their own stocks of grain are ample to cope with the deficiency—the 1940 Continental harvest, plus the total Continental stocks, are certainly enough to feed everybody in Europe until the 1941 harvest is gathered in. Moreover, the newly acquired German reserves could be returned to their proper owners. Substantial quantities of fats could be released by

stopping their conversion into war equipment. The Germans could assuredly provide the necessary transport and organization to supply the pockets of hunger and to relieve local shortages. Above all, the Germans could withdraw their armies of occupation and allow independent Governments to be re-established, thus leaving some hundreds of thousands fewer mouths to be fed, and clearing the way for the British and American supplies which are being accumulated ready for immediate shipment. The existence of the Nazis in these areas, indeed, is the only reason why there should be any shortage at all. The Nazis have created this position, and it is well within their powers to right it.

On the other hand, it is manifestly difficult for British and American people to provide relief for the sort of hunger which is likely to occur. The problem is much more one of distribution of existing European supplies of food than one of actual scarcity of food itself. The only solution of it is real economic reconstruction, and this can be achieved only by the withdrawal of German military control and the supersession of German administration by genuinely neutral or Allied administration. Even if it were possible for relief to be administered in such a way that the Germans gained nothing positive from it, the fact would still remain that the German strategic and industrial exploitation of conquered Europe would thereby be eased, and that the food reserves of Germany, already swollen by loot from the conquered peoples, would be reinforced, for the pressure to draw on them to cope with starvation in Europe would be removed.

In the last war, American attempts to relieve hunger were continuously impeded.¹ Relief of

¹ The best description is Dr. Vernon Kellogg's, in his book *Herbert Hoover*. Significant, too, is a letter to the *New York Times*

Polish distress proved impossible, for the Germans, while asking the Relief Commission to feed the urban areas, insisted on taking the food surplus of the agricultural districts; the Dutch were forcibly prevented from relieving Belgium, for the Germans hoped ultimately to get the Dutch food for themselves; Belgian relief ships were torpedoed; in 1917-18 food was ruthlessly seized from Belgium and Northern France in defiance of firm undertakings given; billeted armies of occupation enjoyed relief food. Such was the record then, when the German authorities were relatively honourable. But now any attempts at relief would have to be administered in co-operation with men whose complete freedom from humanitarian and legalistic scruples has been demonstrated repeatedly. Such an attempt to relieve hardship would simply be regarded by the Nazis as a golden opportunity to evade their responsibilities, to make propaganda against Britain, and to get some free food, not only for the armies of occupation but also for delivery to the German people.

In these circumstances, for Britain to raise the blockade, even for the most humanitarian purposes, would be to treat the war with levity. But at the same time, it is perhaps worth while to outline the circumstances and conditions in which it would be justifiable to raise the blockade. The central circumstances would be, of course, the existence of undeniable evidence of real shortage of food in conquered territory. There appear to be four fundamental conditions which would have to be satisfied. Firstly, all German troops would have to be withdrawn from 'starvation areas'; if Paris were

on 24 August 1940, by Mr. Topping, who was private secretary to the American Minister to Belgium. Professor James Garner's comments in *International Law and the World War* are also of interest.

starving, Paris would have to be declared an open town. Secondly, the Germans would have to undertake to make transport available throughout the conquered territory. Thirdly, there would have to be neutral and well-authenticated evidence that the one-way traffic of food into Germany from conquered territory had been reversed, and that the Germans were making some contribution from their own stocks. Fourthly—and very important—neutrals would have to be given free access to the press and radio to explain precisely what was being done and how the British were deliberately raising the blockade because they did not want to see people starve. These seem to be something like the minimum conditions which the British people can reasonably be asked to accept. If the Germans granted them, then the United States and the British Empire could surely collaborate to alleviate privation. If the Germans declined them, then Nazi responsibility would be even more firmly demonstrated than before. At the moment, there is not the slightest sign that such conditions would be even remotely acceptable to the Nazis. But at the moment, in any case, the central circumstance of widespread privation does not exist.

Blockade in Perspective

So the prospects of Britain's blockade sort themselves into perspective. The extreme importance of the conquered territories becomes increasingly apparent. On the raw material side, they are almost entirely lacking in the commodities in which Germany and Italy are deficient, especially in oil, metals (other than aluminium and iron ore), textile materials, and rubber. As regards food, they are more deficient than Germany and Italy. The blockade, therefore, presents Germany with a

continuous dilemma. The Nazis are forced by the blockade into a choice between destroying the economic life of these countries, and maintaining it at the expense of their own supply of increasingly scarce materials. If they choose the second course, they bring nearer the point at which their own shortages of raw materials interfere seriously with their war potential. If they choose the former course, the whole propaganda of the New Economic Order, which is the means whereby they hope to weld the Continent together against Britain and America, falls to the ground, and with it the hope of extracting industrial and agricultural advantages from the resources of the conquered territories. At present it seems most likely that they will do this. But the price of this is the creation of such dynamic political and social forces in Western Europe as even the Gestapo and the German Army may not be able to control.

Within Germany and Italy it seems certain that the oil position will become more or less critical within the next year, and whatever policy is adopted for the supply of conquered territories, the shortages of copper, alloy metals, textile materials, and rubber will have important effects upon general industrial, electrical, and transport efficiency, and upon the ability to supply consumers' goods within the next eighteen months. The more the blockade is supplemented by bombing, of course, the more rapidly will those difficulties become apparent. The food position, at any rate in cereals, is likely to be fairly maintained for some time to come. But increased pressure upon the supply of fats, and to a less extent of meat, and the continued exclusion of the minor stimulants, tea and coffee, will tend to accentuate the drabness of the diet and make it increasingly unsuitable for an overworked people

whose nerves are strained by continuous air attack.

The blockade is slow in its operation, although its working can be speeded up by bombing. But it does seem that from the summer of 1941 onwards open weaknesses may begin to develop, and that by 1942 the position of the Axis Powers may have been weakened to a sufficient extent to enable the British forces, reinforced at an ever-increasing rate by supplies from the United States and the Dominions, to take the offensive on a decisive scale. A great effort will then be needed by Germany to retain the gains which the armoured divisions have won; it is the function of the blockade to ensure that such effort will not be forthcoming.

